ABSTRACT OF THE DISCLOSURE

An improved catheter is provided that is particularly useful for mapping the electrical activity in a heart. The catheter comprises a plurality of spines each capable of obtaining electrical, mechanical and locational data. The catheter comprises an elongated catheter body having proximal and distal ends and at least one lumen extending longitudinally therethrough. Mounted at the distal end of the catheter body is a mapping assembly having at least two spines, each having a proximal end attached at the distal end of the catheter body and a free distal end. Each spine comprises at least one location sensor and at least one electrode, preferably a tip electrode and at least one ring electrode. The spines may be arranged in an expanded arrangement wherein each spine extends radially outwardly from the catheter body or in a collapsed arrangement wherein each spine is disposed generally along the longitudinal axis of the catheter body. In use, at least one electrode from each spine is positioned in contact with heart tissue to map the electrical activity of the heart. The location sensors are used to determine the location of each point where the electrical activity is monitored.

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